



CHAPTER 8: **GRADING**

The Land Use and Transportation Element of the Chula Vista General Plan states that the mesas, hilltops, and gently rolling topography in Chula Vista offer the best conditions for development. Steeply sloped hills and valleys can serve as resources, linking developed regions and important natural features. A goal of the Otay Ranch GDP is concentrating urban development on flatter areas and retaining the sensitive natural topographic features. The SPA Plan is located primarily on mesa tops sloping south to the Otay River Valley. This chapter describes the guiding policies and requirements for grading and their application to the topographic characteristics of the SPA Plan.

8.1. Grading Requirements

To ensure that subsequent grading plans implement the City's policies regarding landform grading and hillside development, final grading design to implement the SPA Plan shall be consistent with the grading design concepts of the SPA Conceptual Grading Plan, and shall adhere to the grading standards and policies described below.

8.1.1. City of Chula Vista Municipal Code

CVMC § 15.04 – Grading Ordinance contains specific criteria to guide grading within the City:

- Create artificial slopes with curves and varying slope ratios designed to simulate the appearance of surrounding natural terrain.
- Incorporate created ravine and ridge shapes with protective drainage control systems and integrated landscaping design.
- Conventional grading shall mean the standard 2-to-1 slope and other uniform slope faces.
- Conventional grading should be restricted to those cases where adherence to landform grading principles would not produce any significant contribution to the high quality site planning goals established overall by the General Plan.
- Conventional grading is only appropriate where landform grading is demonstrated to be impractical or the location of the slope is in a very low visibility situation.
- The fact that landform grading may not produce the maximum size of building pad or development area is not sufficient justification for determining that landform grading is impractical.

8.1.2. GDP

The GDP also contains specific criteria to guide grading in the overall ranch area. Final grading designs implementing the SPA grading concept are required to incorporate the following:

- Grading shall be subject to CVMC Chapter 15.04 - Excavation, Grading and Fills.
- Ranch-wide, there shall be preservation of 83 percent of the existing steep slopes (property with gradients of 25 percent or greater).
- Geotechnical investigations shall be provided.
- Grading within each village is intended to minimize earth moving distances and to facilitate phased grading.
- Naturalized buffering shall be provided as a transition between development and significant existing landforms.
- Manufactured slope faces over 25 feet shall be varied to avoid excessive “flat planed” surfaces.
- Variable slope ratios not exceeding 2:1 should be utilized when developing grading plans.
- To complement landform grading, landform planting techniques will be utilized. As in a natural setting, major elements of the landscape are concentrated largely in the concave “drainages,” while convex portions are planted primarily with ground cover and minor materials.
- Contour grading shall be required adjacent to Salt Creek.

8.1.3. Otay Ranch Overall Design Plan

The Otay Ranch Overall Design Plan provides additional guidelines for grading within the project area:

- When grading in any of the defined scenic corridors, contours shall be carefully modulated and softened to blend with existing natural slopes to create a more natural and irregular appearance.
- Excessively long, uniform slopes shall be avoided.
- Contours should be rounded and blended without sharp or unnatural corners where cut or fill slopes intersect a natural canyon or slope.
- Transitions between new cut and fill slopes and natural slopes should be made by rolling the top or bottom of the new slope to integrate the two conditions.

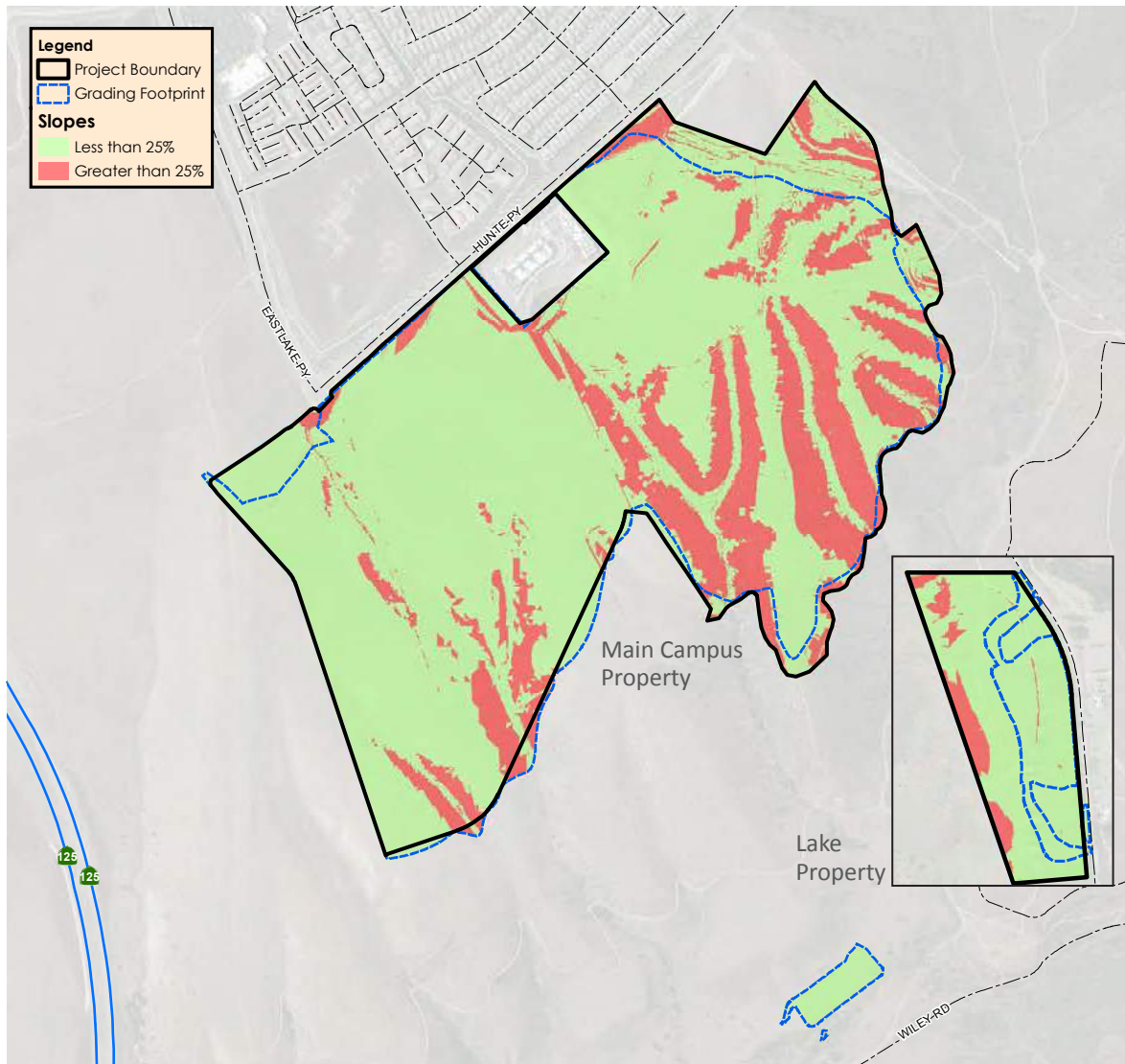
- When grading for development or where roadways intersect a natural slope without cut or fill slopes (daylight condition), a rounded top or bottom of the slope should be retained to blend the natural slope with the building or road pad.
- Create road alignments to meet the natural contours with minimal grading and blending of cut/fill slopes with natural topography is required.
- When feasible, divided roads may be split vertically to soften the impact of grading and to maximize potential scenic views.
- Landscape graded slopes with native and indigenous plant materials to blend with existing planting when adjacent to new landscaping.

The GDP and RMP establish a ranch-wide standard for landform modification that 83% of steep slopes (natural slopes with gradients of 25% or greater) shall be preserved within the Otay Ranch. Based on current data collection and updated modeling results, Otay Ranch contains 9,821 acres of land with gradients of 25% or greater. Applying the GDP/RMP requirement for 83% Ranch-wide steep slope preservation equates to 1,670 acres of steep slopes Ranch-wide that could be impacted.

Potential development in the UI District could impact approximately 74.52 acres comprised of 73.20 acres (on-site) and 1.32 acres (off-site) of natural steep slopes within the Otay Valley Parcel of Otay Ranch refer to Figure 8A: Steep Slope Analysis.

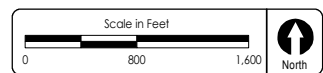
Future build-out projections for remaining SPA Plan areas in the Otay Valley, Proctor Valley, and San Ysidro Parcels estimate that 1,160.4 acres of steep slopes will be impacted Ranch-wide including the 74.52 acres on- and off-site of the UI District refer to Table 8A: Otay Ranch Steep Slopes. Combined with existing steep slope impacts (approximately 445.0 acres from approved plans), Ranch-wide impacts are estimated at 1,605.4 acres. The 1,605.4 acres of impact equates to approximately 84% preservation which is above the 83% preservation standard in the RMP.

Manufactured internal slopes within the UI District are typically 2:1 maximum gradient. If slopes of 25 feet in height or greater in highly visible locations are proposed on the Tentative Map, landform grading techniques may be considered on a case-by-case basis as/and approved by the Development Services Director. It is anticipated that landform grading techniques will be used for slopes 25 feet in height or greater where they occur along prime arterial streets and natural open spaces.



| Boundary | Slopes 25% and Greater | Acres |
|----------|----------------------------------|-------|
| Main | Onsite within Grading Footprint | 73.10 |
| Main | Onsite outside Grading Footprint | 9.44 |
| Main | Offsite within Grading Footprint | 1.27 |
| East | Onsite within Grading Footprint | 0.10 |
| East | Onsite outside Grading Footprint | 3.40 |
| East | Offsite within Grading Footprint | 0.04 |
| South | Offsite within Grading Footprint | 0.01 |

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Date of Exhibit: 03.26.2014
DigitalGlobe Aerial Image: 06.2012

FIGURE 8A: STEEP SLOPE ANALYSIS

TABLE 8A: OTAY RANCH STEEP SLOPES

| | Existing Steep Slopes (Slope Gradient \geq 25%) | Steep Slope Impacts (City of Chula Vista) | Projected Steep Slope Impacts (San Diego County) |
|---|---|---|--|
| Otay Valley Parcel | | | |
| Approved Spa Plans: | | | |
| Villages 1 & 1 West, 2, 3, 4 (Park Portion), 5, 6, 7, 8 East, 8 West, 9, 10, 11, and Planning Area 12 (Eastern Urban Center and Freeway Commercial) Subtotals | 630.9 | 445.0 | - |
| Remaining Spa Plans: | | | |
| Village 4 (Remainder), University, and Planning Area 18 Subtotals | 114.0 | 114.0 ⁽¹⁾ | - |
| Proctor Valley | | | |
| Remaining SPA Plans: | | | |
| Village 13, 14, 16, and 19 Subtotals | 486.3 | - | 486.3 ⁽³⁾ |
| San Ysidro Mountains | | | |
| Remaining SPA Plans: | | | |
| Villages 15 and 17 Subtotals | 560.1 | - | 560.1 ⁽²⁾ |
| Outside Development Areas | | | |
| Subtotals | 8,030.0 | 0 | 0 |
| Ranch-wide Subtotals | 9,821.3 | 559.0 | 1,046.4 |
| Ranch-wide Totals | 9,821.3 | 1,605.4 (or 16.3%) | |

8.2. Grading Concept

The SPA level grading plan provides a preliminary maximum impact grading concept identifying major slope locations. This maximum preliminary grading design is indicated on Figure 8B: Maximum Grading Plan. Although the entire site may be graded at one time, it is more likely that up to six “stand-alone” phases will occur.

The Conceptual UI District grading plan considered the following objectives:

- Create efficient man-made landforms that visually respond to natural terrain characteristics where practical.
- Create and maintain on- and off-site views.
- Create usable areas that provide for a variety of commercial, mixed-use, and residential land uses.
- When significant land forms are modified for project implementation, round the land form as much as possible to blend into the natural grade.
- Utilize the grade for tuck-under parking structures.
- With approval of the City Engineer, round the tops and toes of slopes. When slopes cannot be rounded, utilize vegetation to alleviate sharp angular appearances.
- Create smooth transitions between the SPA and surrounding properties.
- Balance earthwork, utilizing an equal amount of cut for an equal amount of fill.
- Utilize elevation changes to separate potential land use conflicts.
- Minimize, where feasible, impacts to sensitive areas adjacent including the Otay River Valley and Salt Creek.
- Undulate slopes surrounding the UI District with variable horizontal and vertical gradients, to blend into the surrounding terrain and create an aesthetically pleasing setting.
- Design retaining walls to avoid conflicts with utilities.

Ayers Saint Gross has proposed a stepped grading plan allowing for parking to be located under each block to take up the grade (refer to Figure 8C: Conceptual Grading Plan).

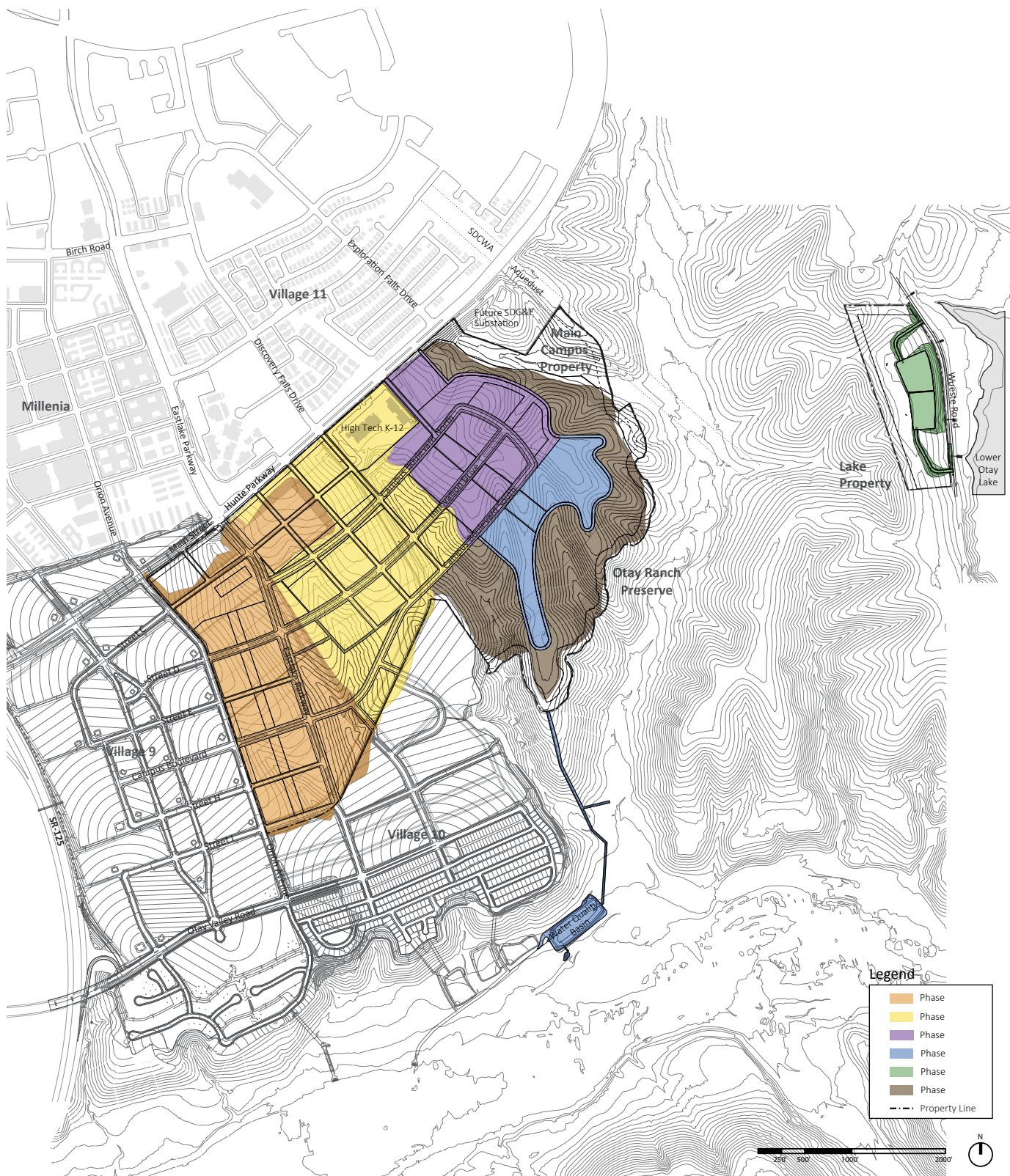


FIGURE 8B: MAXIMUM GRADING PLAN

8.3. Grading Practices

Preliminary soils and geotechnical reports have been prepared and have identified the site as being suitable for development. The combined raw grading quantity for the UI District and off-site infrastructure is approximately 13,537,000 cubic yards of balanced cut and fill material. Both the UI District and Village 10 site grading balance independently. This raw quantity is exclusive of remedial measures that may be required by the soils engineer. Actual quantities will be based on more detailed engineering at the tentative map, grading plan and final map stages. Grading does extend beyond the boundary of the UI District for the construction of roads and infrastructure.

Figure 8D: Maximum Cut and Fill Plan illustrates the locations of cut and fill. Based on actual field conditions, the erosion potential of slopes will be reduced with control measures such as berms at the tops of all slopes, paved interceptor ditches, and vegetation. Erosion control will be consistent with best management practices.

Project grading permits will provide assurances acceptable to the City Engineer that landscaped slopes will have adequate maintenance to ensure continued viability of landscaping. Generally, except for private lots, slopes which exceed ten feet in height will be maintained by a homeowners' or property owners' association or a landscape maintenance Community Facilities District (CFD).

The proposed development concept for the UI District does not use the maximum impact grading concept.

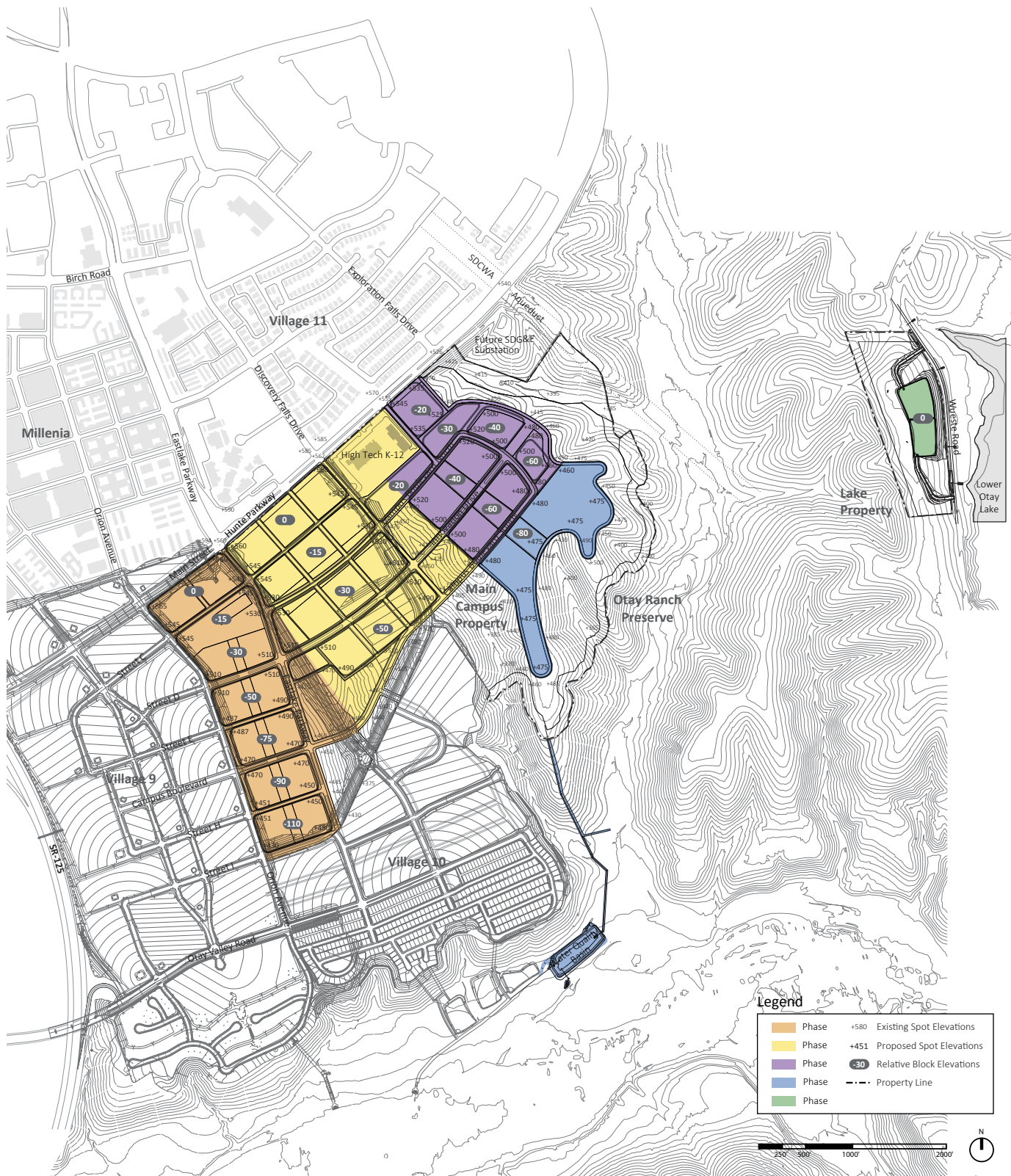


FIGURE 8C: CONCEPTUAL GRADING PLAN

8.4. Grading Review

Tentative Maps and grading plans will require conformance to the grading concepts and requirements contained in this SPA, and to all applicable City policies and ordinances.

Prior to grading plan approval by the City Engineer, all grading will be subject to the requirements of the CVMC, Title 15.04, Storm Water Management and Discharge Control Ordinance No 2854, the City of Chula Vista Subdivision Manual, Design and Construction Standards of the City of Chula Vista, San Diego Area Regional Standard Drawings, and Standard Specifications for Public Works Construction.

Prior to issuance of any land development permits including clearing, grubbing, and/or grading, the developer shall also comply with the applicable mitigation measures outlined in the EIR and the associated Mitigation Monitoring and Reporting Program.

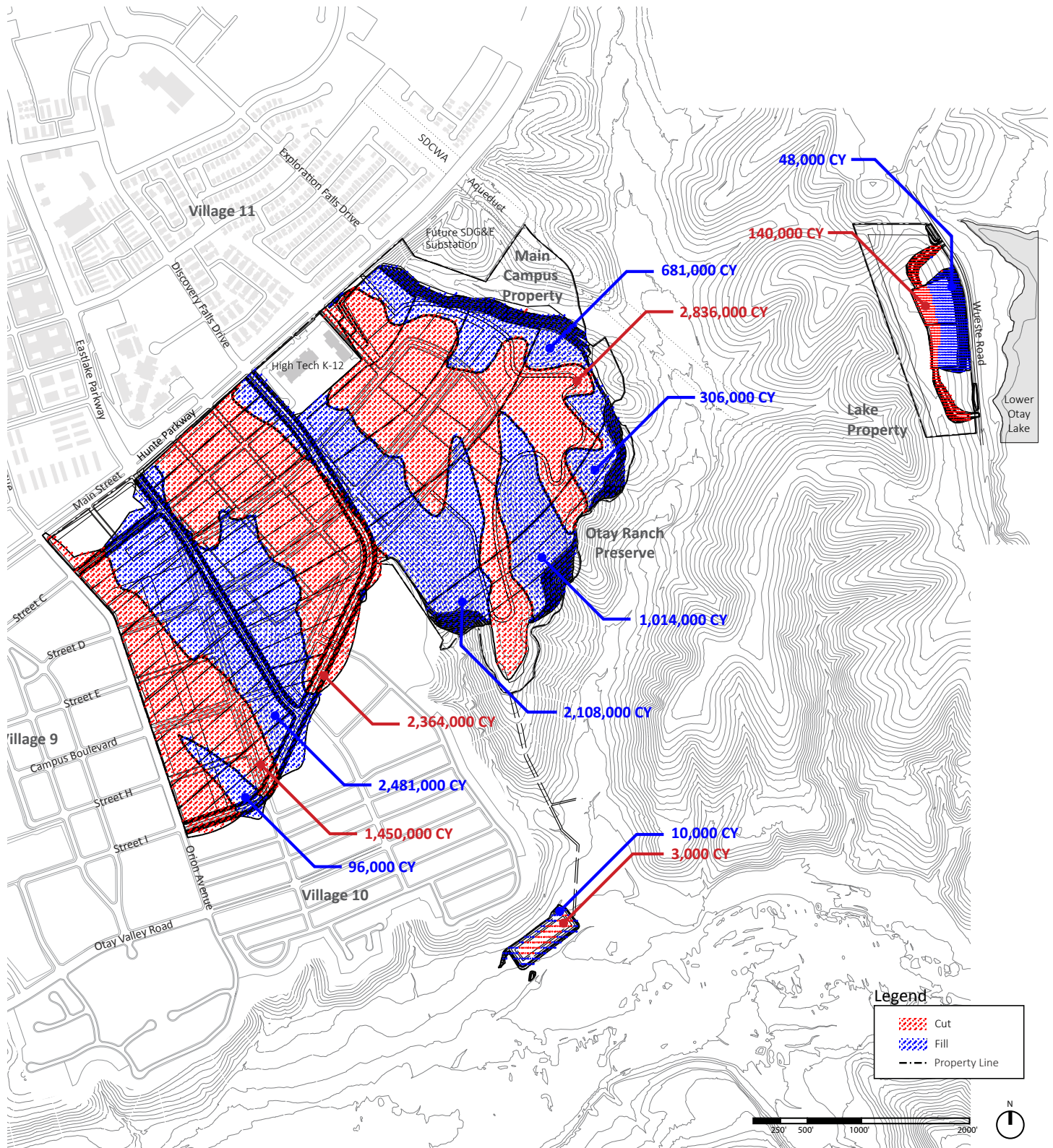


FIGURE 8D: MAXIMUM CUT AND FILL PLAN